CLAIMS

What is claimed is:

5   1.   A method for hub-based network access, the method
comprises:

receiving packets from at least one of a plurality of
clients;

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determining whether a network access application is active
for the at least one of the plurality of clients;

when the network access application is active for the at
15   least one of the plurality of clients, processing data of
at least one of the packets in accordance with the network
access application to produce network data;

determining access to a network connection for transmission
20   of the network data based on a client-access-to-the-
network-connection scheme to produce a determined network
access;   and

transporting the network data via the network connection
based on the determined network access.

2.   The method of claim 1, wherein the determining whether
5   the network access application is active further comprises:

interpreting a header section of at least one of the
packets to identify the at least one of the plurality of
clients;

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interpreting the header section of the at least one of the
packets to determine a type of network access;   and

determining whether the network application is active based
15   on the identity of the at least one of the plurality of
clients and on the type of network access.

3.   The method of claim 2, wherein the determining the
type of network access further comprises at least one of:

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interpreting the header section of the at least one of the
packets to determine e-mail network access;   and

interpreting the header section of the at least one of the
packets to determine web browser network access.

4.   The method of claim 1, wherein the determining access

5   to the network connection further comprises at least one

of:

time division multiplexing access to the network connection
based on clients of the plurality of clients that currently

10   have an active network access application;

carrier sensed multiple access processing the access the
network connection among the clients of the plurality of
clients that currently have an active network access

15   application;

passing a token among the clients of the plurality of
clients that currently have an active network access
application to obtain access to the network connection;

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queuing the network data in a first-in-first-out buffer to
obtain access to the network connection; and

requesting access to the network connection.

5.   The method of claim 1 further comprises:

logging a destination address and a source address for the

5   network data, wherein the source address identifies the at

least one of the plurality of clients;

receiving network packets via the network connection;

10   interpreting a header section of the network packets to

identify a response to the network data;   and

when a network packet of the network packets is at least a

portion of the response, providing the network packet to

15   the at least one of the plurality of clients.

6.   The method of claim 1 further comprises:

when the network access application is not active, opening

20   a network access application for the at least one of the

plurality of clients.

7.   A method for hub-based network access, the method

comprises:

receiving packets from at least one of a plurality of

5   clients;

interpreting each of the packets to determine whether the

each of the packets is a client-to-client packet or a

network packet;

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for each of the packets that is a client-to-client packet,

processing the each of the packets that is a client-to-

client packet to produce processed client packets;

15   multiplexing the processed client packets for transmission

to the plurality of clients to produce multiplexed client

packets;   and

transmitting the multiplexed client data to the plurality

20   of clients.

8.   The method of claim 7, wherein the interpreting each

of the packets further comprises:

interpreting a header section of the each of the packets to identify a destination address;

determining that the destination address addresses one of the plurality of clients to determine that the each packet is a client-to-client packet; and

determining that the destination address addresses an entity other than one of the plurality of clients.

9. The method of claim 7, wherein the interpreting each of the packets further comprises:

interpreting an identifying field of the each of the packets to determine whether the each of the packets is a client-to-client packet or a network packet.

10. The method of claim 7, wherein the processing the each of the packets that is a client-to-client packet further comprises:

determining access to a shared communication path of the plurality of clients, wherein a type of access includes at least one of: time division multiplexing, frequency

division multiplexing, carrier sensed multiple access,

token ring, and first-in-first-out buffering.

11. The method of claim 7 further comprises:

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for each of the packets that is a network packet,

identifying at least one of the plurality of clients;

determining whether a network access application is active

10   for the at least one of the plurality of clients;

when the network access application is active for the at

least one of the plurality of clients, processing data of

at least one of the network packets in accordance with the

15   network access application to produce network data;

determining access to a network connection for transmission

of the network data based on a client-access-to-the-

network-connection scheme to produce a determined network

20   access; and

transporting the network data via the network connection

based on the determined network access.

12. A method for hub-based network access, the method comprises:

receiving network packets via a network connection;

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determining identity of at least one of a plurality of clients as a target of at least one of the network packets to produce an identified client;

10 determining whether a network access application is active for the identified client;

when the network access application is active for the identified client, processing data of the at least one of

15 the network packets to produce client data;

multiplexing the client data for transmission to the plurality of clients to produce multiplexed client data; and

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transmitting the multiplexed client data to the plurality of clients.

13. The method of claim 12, wherein the determining

identity of at least one of the plurality of clients

further comprises:

5   interpreting a header section of the at least one network

packets, wherein the header section includes an address of

the at least one of the plurality of clients.

14. The method of claim 12, wherein the determining

10 whether the network access application is active further

comprises:

interpreting a header section of the at least one of the

network packets to identify the at least one of the

15 plurality of clients;

interpreting the header section of the at least one of the

network packets to determine a type of network access; and

20 determining whether the network application is active based

on the identity of the at least one of the plurality of

clients and on the type of network access.

15. The method of claim 14, wherein the determining the type of network access further comprises at least one of:

interpreting the header section of the at least one of the packets to determine e-mail network access; and

interpreting the header section of the at least one of the packets to determine web browser network access.

16. The method of claim 12, wherein the processing of the data of the at least one of the network packets further comprises:

preparing display data based on the data of the at least one of the network packets and the network access application;

storing the display data in a frame buffer to produce stored display data; and

when a frame of display data is available, retrieving portions of the stored display data for packetizing.

17.   The method of claim 16, wherein the multiplexing of the client data further comprises:

multiplexing packets of the stored display data to produce
5   the multiplexed client data.

18.   The method of claim 12 further comprises:

receiving client-to-client packets from at least one of a
10   plurality of clients;

processing the client-to-client packets to produce processed client packets;

15   multiplexing the processed client packets with the client data for transmission to the plurality of clients to produce multiplexed client packets;   and

transmitting the multiplexed client data to the plurality
20   of clients.

19.   A local area network hub comprises:

processor;

5   memory operably coupled to the processor, wherein the

memory includes first memory section for storing a

plurality of network access applications, second memory

section for storing a modem accessing application, third

memory section for storing a client servicing application,

10   fourth memory section for storing display data, and a fifth

memory section for storing client data;

video graphics processor operably coupled to the memory,

wherein the video graphics processor generates the display

15   data from network data;

memory controller operably coupled to the processor, the

video graphics processor, and the memory, wherein the

memory controller controls access to the memory;

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modem interface operably coupled to the processor, wherein

the modem interface provides a connection to a modem;   and

client transceiving module operably coupled to the memory

and memory controller, wherein the client transceiver

receives the client data from at least one of a plurality

of clients and provides at least some of the display data

5   to at least one client of the plurality of clients, wherein

the processor, based on the client data, performs the

client application to obtain the network data.

20.   The local area network hub of claim 19, wherein the

10   memory further comprises:

sixth memory section for storing a client-to-client

communication application, wherein the processor performs

the client-to-client communication application to support

15   client-to-client communications.

21.   The local area network hub of claim 19 further

comprises:

20   a plurality of video graphics processors, wherein each of

the video graphics processor generates the display data

from the network data for a corresponding one of the

plurality of clients.

22. The local area network hub of claim 19, wherein the

memory controller further comprises:

memory chip set that provides selective access to the

5   memory by the processor and the video graphics processor.

23.　An apparatus for hub-based network access, the apparatus comprises:

processing module;　and

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memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to:

10　receive packets from at least one of a plurality of clients;

determine whether a network access application is active for the at least one of the plurality of

15　clients;

when the network access application is active for the at least one of the plurality of clients, process data of at least one of the packets in accordance with the

20　network access application to produce network data;

determine access to a network connection for transmission of the network data based on a client-

access-to-the-network-connection scheme to produce a

determined network access; and

transport the network data via the network connection

5   based on the determined network access.

24. The apparatus of claim 23, wherein the memory further

comprises operational instructions that cause the

processing module to determine whether the network access

10   application is active by:

interpreting a header section of at least one of the

packets to identify the at least one of the plurality of

clients;

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interpreting the header section of the at least one of the

packets to determine a type of network access; and

determining whether the network application is active based

20   on the identity of the at least one of the plurality of

clients and on the type of network access.

25. The apparatus of claim 24, wherein the memory further

comprises operational instructions that cause the

processing module to determine the type of network access

by at least one of:

interpreting the header section of the at least one of the

5   packets to determine e-mail network access; and

interpreting the header section of the at least one of the

packets to determine web browser network access.

10   26.   The apparatus of claim 23, wherein the memory further

comprises operational instructions that cause the

processing module to determine access to the network

connection by at least one of:

15   time division multiplexing access to the network connection

based on clients of the plurality of clients that currently

have an active network access application;

carrier sensed multiple access processing the access the

20   network connection among the clients of the plurality of

clients that currently have an active network access

application;

passing a token among the clients of the plurality of clients that currently have an active network access application to obtain access to the network connection;

5   queuing the network data in a first-in-first-out buffer to obtain access to the network connection; and

requesting access to the network connection.

10   27.   The apparatus of claim 23, wherein the memory further comprises operational instructions that cause the processing module to:

log a destination address and a source address for the
15   network data, wherein the source address identifies the at least one of the plurality of clients;

receive network packets via the network connection;

20   interpret a header section of the network packets to identify a response to the network data; and

when a network packet of the network packets is at least a
portion of the response, provide the network packet to the
at least one of the plurality of clients.

5   28.   The apparatus of claim 23, wherein the memory further
comprises operational instructions that cause the
processing module to:

when the network access application is not active, open a
10   network access application for the at least one of the
plurality of clients.

29.   An apparatus for hub-based network access, the apparatus comprises:

processing module; and

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memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to:

10   receive packets from at least one of a plurality of clients;

interpret each of the packets to determine whether the each of the packets is a client-to-client packet or a

15   network packet;

for each of the packets that is a client-to-client packet, process the each of the packets that is a client-to-client packet to produce processed client

20   packets;

multiplex the processed client packets for transmission to the plurality of clients to produce multiplexed client packets; and

transmit the multiplexed client data to the plurality of clients.

5   30.   The apparatus of claim 29, wherein the memory further comprises operational instructions that cause the processing module to interpret each of the packets by:

interpreting a header section of the each of the packets to

10   identify a destination address;

determining that the destination address addresses one of the plurality of clients to determine that the each packet is a client-to-client packet;   and

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determining that the destination address addresses an entity other than one of the plurality of clients.

31.   The apparatus of claim 29, wherein the memory further

20   comprises operational instructions that cause the processing module to interpret each of the packets by:

interpreting an identifying field of the each of the packets to determine whether the each of the packets is a client-to-client packet or a network packet.

5   32.   The apparatus of claim 29, wherein the memory further comprises operational instructions that cause the processing module to process the each of the packets that is a client-to-client packet by:

10   determining access to a shared communication path of the plurality of clients, wherein a type of access includes at least one of: time division multiplexing, frequency division multiplexing, carrier sensed multiple access, token ring, and first-in-first-out buffering.

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33.   The apparatus of claim 29, wherein the memory further comprises operational instructions that cause the processing module to:

20   for each of the packets that is a network packet, identify at least one of the plurality of clients;

determine whether a network access application is active for the at least one of the plurality of clients;

when the network access application is active for the at

least one of the plurality of clients, process data of at

least one of the network packets in accordance with the

5   network access application to produce network data;

determine access to a network connection for transmission

of the network data based on a client-access-to-the-

network-connection scheme to produce a determined network

10   access;   and

transport the network data via the network connection based

on the determined network access.

34. An apparatus for hub-based network access, the apparatus comprises:

processing module; and

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memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to:

10   receive network packets via a network connection;

determine identity of at least one of a plurality of clients as a target of at least one of the network packets to produce an identified client;

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determine whether a network access application is active for the identified client;

when the network access application is active for the identified client, process data of the at least one of the network packets to produce client data;

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multiplex the client data for transmission to the

plurality of clients to produce multiplexed client

data; and

5   transmit the multiplexed client data to the plurality

of clients.

35.   The apparatus of claim 34, wherein the memory further

comprises operational instructions that cause the

10   processing module to determine identity of at least one of

the plurality of clients by:

interpreting a header section of the at least one network

packets, wherein the header section includes an address of

15   the at least one of the plurality of clients.

36.   The apparatus of claim 34, wherein the memory further

comprises operational instructions that cause the

processing module to determine whether the network access

20   application is active by:

interpreting a header section of the at least one of the

network packets to identify the at least one of the

plurality of clients;

interpreting the header section of the at least one of the
network packets to determine a type of network access;   and

5   determining whether the network application is active based
on the identity of the at least one of the plurality of
clients and on the type of network access.

37.   The apparatus of claim 36, wherein the memory further
10 comprises operational instructions that cause the
processing module to determine the type of network access
by at least one of:

interpreting the header section of the at least one of the
15 packets to determine e-mail network access;   and

interpreting the header section of the at least one of the
packets to determine web browser network access.

20 38.   The apparatus of claim 34, wherein the memory further
comprises operational instructions that cause the
processing module to process of the data of the at least
one of the network packets by:

preparing display data based on the data of the at least

one of the network packets and the network access

application;

5   storing the display data in a frame buffer to produce

stored display data;   and

when a frame of display data is available, retrieving

portions of the stored display data for packetizing.

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39.   The apparatus of claim 38, wherein the memory further

comprises operational instructions that cause the

processing module to multiplex the client data by:

15   multiplexing packets of the stored display data to produce

the multiplexed client data.

40.   The apparatus of claim 34, wherein the memory further

comprises operational instructions that cause the

20   processing module to:

receive client-to-client packets from at least one of a

plurality of clients;

process the client-to-client packets to produce processed

client packets;

multiplex the processed client packets with the client data

5 for transmission to the plurality of clients to produce

multiplexed client packets; and

transmit the multiplexed client data to the plurality of

clients.

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